

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (withdrawn). A layerwise optical moulding process for producing a three-dimensional article in sequential cross-sectional layers comprising the steps of:

- (a) forming a first layer of a photocurable composition which comprises at least two curable components:
 - (i) at least 80 % by weight of the total curable components in the composition is a first component that is photocurable and that is such that, when cured in the presence of a photocuring initiator by exposure to UV radiation having an energy of 30 mJ/cm^2 , at least 90% by weight of the component is cured within 50 milliseconds; and
 - (ii) at least 5% and at most 15% by weight of the total curable components in the composition is a second component having at least one terminal thiol group that results in the composition, on curing, shrinking, in a linear direction, by less than 3% in length;
- (b) exposing the first layer to actinic radiation from a non-coherent light source in a pattern corresponding to a respective cross-sectional layer of the three-dimensional article wherein the exposure is sufficient to harden the first layer;
- (c) forming a second layer of the photocurable composition above the hardened first layer;
- (d) exposing the second layer to layer to actinic radiation from a non-coherent light source in a pattern corresponding to a respective cross-sectional layer of the three-dimensional article wherein the exposure is sufficient to harden the second layer;
- (e) repeating steps (c) and (d) as desired to form the three-dimensional article.

Claim 2 (withdrawn). A process as claimed in claim 1, wherein at least 90% by weight of the first component is cured within 50 milliseconds, when the first component is cured in the presence of a photocuring initiator by exposure to UV radiation having an energy of 20 mJ/cm².

Claim 3 (withdrawn). A process as claimed in claim 1, wherein the first component comprises one or more materials selected from the group consisting of:

- (a) an acrylate;
- (b) an amine base proliferation system comprising an amine photoinitiator, a base amplifier and an anionically curable material;
- (c) an acid amplified system comprising at least one cationically photocurable material; and
- (d) a polymer chain having 2 or more functional photoinitiation groups that, on exposure to radiation, can form reactive groups that react with curable components in the composition to incorporate the said polymer chain into the cured composition.

Claim 4 (withdrawn). A process as claimed in claim 1 wherein the second component further comprises one or more materials selected from the group consisting of:

- (a) a methacrylate or mixture thereof;
- (b) a compound having at least one terminal -NH or -OH group,
- (c) an isocyanate, optionally blended with a latent polyol,
- (d) an epoxy optionally blended with an acid amplifier,
- (e) an oxetane,
- (f) a furan, and
- (g) an ortho spiro compound.

Claim 5 (withdrawn). A process as claimed in claim 1, wherein the second component comprises a polythiol having two or more thiol groups per molecule.

Claim 6 (withdrawn). A process as claimed in claim 1 wherein the photocurable composition also contains one or more flexibilisers or tougheners.

Claim 7 (currently amended). An optical moulding composition comprising, in weight percent:

- (a) at least two curable components:
 - (i) a first component in an amount of at least 80%, based on the total weight of the curable components in the composition, the first component being an acrylate and photocurable and such that, when cured in the presence of a photocuring initiator by exposure to UV radiation having an energy of 30 mJ/cm², at least 90% by weight of the acrylate component is cured within 50 milliseconds, and
 - (ii) a curable second component in an amount of at least 5% and at most 15% by weight of the total curable components in the composition, the second component being a compound having at least one terminal thiol group that results in the composition, on curing with a non-coherent source of radiation, shrinking, in a linear direction, by less than 3% in length,
- (b) 0 to 10%, by weight, of a cationic photoinitiator,
- (c) \pm 0.01 to 10%, by weight, of a radical photoinitiator,
- (d) \pm 0.001 to 5% by weight of a stabilizer against premature curing prior to use in the process, and
- (e) 0 to 20% by weight of auxiliary materials.

Claim 8 (currently amended). A composition as claimed in claim 7, wherein at least 90% by weight of the acrylate first component is cured within 50 milliseconds, when the acrylate first component is cured in the presence of a photocuring initiator by exposure to UV radiation having an energy of 20 mJ/cm².

Claim 9 (currently amended). A composition as claimed in claim 7, wherein the first component further comprises one or more materials selected from the group consisting of:

(a) ~~an acrylate,~~

(b) (a) an amine base proliferation system comprising an amine photoinitiator and a photo-polybase amplifier, and an anionically photocurable material, and

(c) (b) an acid amplified system comprising at least one cationically photocurable material, a cationic photocuring initiator, and an acid amplifier.

Claim 10 (previously presented). A composition as claimed in claim 7, wherein the photocurable composition also contains 1 to 10% by weight of one or more flexibilisers or tougheners.

Claim 11 (canceled).

Claim 12 (previously presented). A composition as claimed in claim 7, wherein the first component includes a carbon-carbon double bond and the ratio of double bonds to thiol groups in the composition is 10:1 to 2:1.